



**Finding of No Significant Impact
and
Decision
for
Predator Damage Management
In Nevada**

The U.S. Department of Agriculture, Animal and Plant Health Inspection Service (USDA-APHIS), Wildlife Services (WS) program responds to a variety of requests for assistance from individuals, organizations and agencies experiencing damage caused by wildlife in Nevada. WS activities are conducted in cooperation with other federal, state, and local agencies, as well as private organizations and individuals. WS cooperates with and supervises the Predatory Animal and Rodent Committee (PARC) and the Nevada Woolgrowers Predatory Animal Committee (NWPAC), programs found within the Nevada Department of Agriculture¹, formerly in the Department of Business and Industry. The three entities form the Nevada Animal Damage Control Program (NADCP).

Ordinarily, according to APHIS procedures implementing the National Environmental Policy Act (NEPA), individual wildlife damage management (WDM) actions maybe categorically excluded (7 CFR 372.5(c), 60 Fed. Reg. 6000-6003, 1995). WS prepared an environmental assessment (EA) to comply with APHIS NEPA implementing regulations and interagency agreements, to facilitate planning, interagency coordination, streamline program management, and involve the public.. The predecisional EA, released by WS in March 1999, documented the need for predator damage management (PDM) in Nevada and assessed potential impacts of various alternatives for responding to predator damage problems.

WS' proposed action was to allow the use of the full range of PDM methods on all lands authorized in the State for the protection of livestock, property, natural resources, and public safety.

Public Involvement

Following interagency review of a preliminary draft of the EA, a predecisional EA was prepared and released to the public for a 30-day comment period. Eighty three EAs were sent directly to interested parties and 12 were sent to State agencies via the State Clearinghouse. Notice of availability of the predecisional EA was published in two major Nevada newspapers for 3 consecutive days and in three local Nevada newspapers for one day. The legal notices appeared in these newspapers from March 29 to April 1, 1999. A mailing list with 111 potentially interested parties from previous NEPA documents was used to notify persons and groups of the availability of the EA. As a result of the newspaper and mailings, 21 EAs were sent out. The deadline for comments was set at May 3, 1999, but all comments received, even those following the deadline, were included for consideration.

Public Comments

A total of seven public comment letters were received in response to the predecisional EA. Although most of the comments raised were already addressed in the predecisional EA, each will be discussed with further information for clarity. Comments that were similar were grouped where the response was appropriate for them. The following comments were received.

1. As of July 1, 1999, the Division of Agriculture became a Nevada State Department and PARC and NWPAC were transferred to this Department.

Comment 1: Taxpayer money is being spent to kill publicly owned wildlife for a small percentage of livestock producers; sheep head tax only contributed \$17,277 to NADCP representing only 1.4% of monies used for livestock protection.

Response: The scope and mission of NADCP PDM activities is much broader than stated in the comment. Tax dollars appropriated to the program are congressionally designated to be spent on wildlife damage management (WDM) activities as broadly identified in the Animal Damage Control Act of 1931 and the Rural Development, Agriculture, and Related Agencies Appropriations Act of 1988. As such, these funds are used to protect agriculture, personal property, and natural resources (including threatened and endangered (T&E) species) from wildlife damage as well as to safeguard public health and safety. These funds may be spent conducting PDM activities on private and public lands in accordance with federal, state, or local laws, and based on the types of requests for services.

WDM is an appropriate sphere of activity for government programs, since wildlife management is a government responsibility. Section 2.3.4 of the predecisional EA discusses the concern that tax dollars are being spent for PDM to protect livestock and other resources. This issue was not considered any further in the EA because it was believed that given the rationale discussed in Section 2.3.4, it could be dismissed. Section 2.3.4 discussed that some individuals believe that WDM should not be provided at the expense of taxpayers or that WDM activities should be fee based. However, WS was established by Congress as the Federal agency responsible for providing WDM to the people of the United States. Funding for NADCP comes from a variety of sources besides Federal appropriations. Generally State, county and livestock producer funds are all applied to a cooperative program under Cooperative Agreements. Federal, State and local officials have decided that WDM should be conducted by appropriating funds.

Furthermore, Section 1.1 in the predecisional EA provides a discussion of the need for PDM in Nevada and this includes the need to protect livestock. Section 4.2.1.9 discusses the benefits to resource owners and consumers from NADCP PDM services under the current program. These sections adequately discuss the need to conduct PDM and the cost-effectiveness of such activities. Livestock depredation tends to be concentrated rather than evenly distributed, so it can appear to benefit a select group at any given time, as compared to the general population. However, the economic impacts on the few affected can be devastating. Damage can occur at any time or location, and NADCP would be available to assist those suffering damage.

In addition the WS Programmatic Final Environmental Impact Statement (FEIS) (USDA 1997) has a detailed discussion in Chapter 4. D. 2. c. Economists with USDA have published studies that indicate that consumer impacts are 2.62 times greater for the public (the consumer of agricultural commodities), than the costs of production and losses on profits received by the agricultural resource producers of these products. Since livestock producers supply commodities that are consumed by many people, the benefits derived from cost effective PDM activities encompasses more than just livestock producers.

The scope and diversity of NADCP is changing rapidly. Non-traditional cooperators now use the program for PDM activities that include the protection of the public health and safety to the protection of T&E species from other wildlife. Public health and safety issues are an increasing component of the program. Responses to public safety incidents are generally limited to a relatively few members of the public at any given time, but all people potentially benefit from NADCP operational damage management and technical assistance services. Regardless of the resources, whether it is livestock, other forms of agriculture, property, or safety and health, NADCP services are available to everyone.

Comment 2: NADCP does not document all losses and, therefore, cannot argue cost efficacy; \$1.23 million was spent for livestock protection in FY 98, but only \$240,000 in losses was reported, therefore, NADCP is ineffective and inefficient.

Response: Wildlife damage a substantial amount of resources throughout the United States annually, even with the efforts of the WS program. This does not warrant the conclusion that the WS program is inefficient or ineffective. If anything, the total amount of wildlife damage suggests that increased efforts to manage such damage are necessary. Studies indicate that WDM methods such as those provided by NADCP are effective in avoiding wildlife damage in local areas (examples of such studies are referenced in the Economic Impact Assessment in Chapter 4 of the EIS). These conclusions are supported by GAO's 1990 report, "Wildlife Management: Effects of Animal Damage Control Program on Predators," that "according to available research, localized-lethal controls have served their purpose in reducing such predator damage" (GAO 1990). While temporary, localized population reduction of certain wildlife species including coyotes "responsible for damage has been demonstrated to reduce damage, the program strives to achieve maximal damage resolution with minimal impacts to the biological environment."

Costs of NADCP PDM services provided for livestock protection in Nevada for Fiscal Year (FY)1998 included salary and benefits for field, supervisory and administrative staff, supplies, equipment, vehicles and transportation, aerial hunting, and all other related program expenditures. During FY 98, NADCP's cost (including expenditures of both federal and nonfederal funds) was about \$1,229,624 for livestock protection.

Sheep and Lamb Losses. Scientific studies have revealed that in the absence of PDM, losses of adult sheep and lambs to predators can be as high as 8.4% and 29.3%, respectively (Henne 1977, Munoz 1977, O'Gara et al. 1983) whereas in studies in which PDM was conducted, losses were about 0.5 and 4.3%, respectively (USDI 1979). In analyzing the value of sheep and lamb losses avoided by PDM, USDA (1997) used an unweighted average rate of loss in studies without PDM to be 4.5% for sheep and 17% for lambs.

Cattle and Calf Losses. No studies of cattle and calf losses in the absence of PDM have been conducted. Survey data discussed in USDI (1978) showed that 85% of cattle producers in the southwest U.S. had *no* losses of calves to coyotes, that 13% had coyote predation losses of up to 5% of calves born alive, and that 2% had losses to coyotes greater than 5%. Those data indicate a minority of cattle producers have most of the coyote predation problems that are experienced by cattle producers as a whole. It is within reason to assume that producers who experience higher losses are more likely to become WS cooperators. Thus, it is reasonable to predict that losses on cooperating cattle ranches would be as great as the higher loss producers in the data shown by USDI (1978). Therefore, we predict that cooperating cattle ranches would have an average of about 5% calf losses to coyotes in the absence of PDM.

Value of Avoided Losses Compared to Cost of PDM Service. Table 1 shows the percentages of predator losses for sheep, lambs, and calves that were protected by NADCP. Table 2 illustrates the losses avoided by cooperating farms and ranches because of NADCP PDM services in Nevada. The above data indicated that the value of livestock saved exceeded the cost of providing service by a factor between 2.2 to 1 and 4.2 to 1. These data do not include other classes of livestock that were protected by NADCP in relatively small numbers such as swine, horses, domestic ducks, turkeys, chickens, goats, and ratites (ostriches and emus). An estimate of the numbers saved from predation for those classes of livestock was not made. Other less apparent benefits not considered in this comparison include maintenance of local economic stability, price benefits to consumers (USDA 1997), and a relatively higher degree of environmental protection derived from the use of more selective PDM methods and from the reduced risk of private individuals resorting to illegal chemical uses.

Tables 1 and 2 illustrate the effectiveness of the NADCP. The comment that compared \$1.23 million spent on livestock protection by NADCP to NADCP's reported losses had an incorrect assumption. The question is not how much in losses occurs before or while efforts are being made to stop or prevent them, but how much in losses is being *avoided*. It is analogous to a fire department that requires \$10 million a year to

operate, but keeps fire damage in a community down to \$1 million a year. You cannot say the department is not worth the cost just because reported fire damage was only worth $\frac{1}{10}$ of what it cost to have a fire department. You have to decide based on what the losses would have been *without* a fire department. By the best estimates, the value of *avoided* losses in Nevada exceeds the cost of NADCP PDM efforts.

Table 1. Rates of lamb, sheep, and calf losses to predators calculated from data reported by cooperating livestock producers to NADCP in 1997. Data is collected by month in the Management Information System (MIS) for the different classes of livestock on each contiguous property. Cooperators move livestock, especially sheep, to new grazing areas throughout the year, and these are entered in the MIS for the new property. Therefore, the numbers of livestock protected by NADCP in the MIS can be duplicated. For example, a livestock owner may graze the same set of livestock on 3 different properties during the year and under the MIS, these would be counted 3 times. However, monthly totals of livestock protected does not include this duplication. The highest monthly total, though, would be lower than the actual number of livestock protected by NADCP through the course of a year. Therefore, the actual number of protected livestock and percentage lost to predators would range between these figures.

	Lambs protected	Lambs lost to predators	% lost to predators	Sheep protected	Sheep lost to predators	% lost to predators	Calves protected	Calves lost to predators	% lost to predators
MIS 1997 Total	188,118	4,744	2.5%	370,252	1,804	0.5%	134,112	1,482	1.1%
Highest month	106,542	4,744	4.5%	147,028	1,804	1.2%	97,688	1,482	1.5%

Table 2. Estimated value of livestock losses avoided vs. costs for the NADCP PDM for FY 98. Predicted percent loss estimates for sheep and lambs without PDM were taken from the WS FEIS (USDA 1997); percent loss estimates for calves without PDM were estimated using an analysis of survey data from USDI (1978). High and low estimate numbers are given because the actual numbers of livestock protected is between the two estimates. Losses include only those from species considered in the "Nevada Predator Damage Management in Nevada" EA.

Resource		# Protected by WS	% Lost to Predation w/ WS PDM	Predicted% Lost to Predation w/o PDM	# Losses Avoided by PDM	\$ Value per Head	Estimated Value of Avoided Losses	Cost of Providing Service — FY 1997 (includes federal and cooperative funding)
Lambs	High Est.	188,118	2.5%	17.0%	27,236	\$72.00	\$1,960,992	
	Low Est.	106,542	4.5%	17.0%	13,368	\$72.00	\$962,496	
Sheep	High Est.	370,252	0.5%	4.5%	14,857	\$80.00	\$1,188,587	
	Low Est.	147,028	1.2%	4.5%	4,812	\$80.00	\$384,960	
Calves	High Est.	134,112	1.1%	5.0%	5,224	\$390.00	\$2,037,204	
	Low Est.	97,688	1.5%	5.0%	3,402	\$390.00	\$1,326,780	
						High Total	\$5,186,783	\$1,229,624
						Low Total	\$2,674,236	

Comment 3: Some losses should be part of business on public lands.

Response: Although some losses of livestock and poultry can be expected and tolerated by livestock producers, WS has the legal authority to respond to requests for PDM and it is program policy to aid each requester to minimize losses. If damage management efforts are not initiated soon after a damage problem is detected, losses may sometimes escalate to excessive levels before the problem is solved. This is discussed in Section 2.3.3 of the predecisional EA. As discussed in this section, in a ruling for Southern Utah Wilderness Alliance, et al. vs. Hugh Thompson, Forest Supervisor for the Dixie NF, et al., the United States District Court of Utah (U.S. District Court of Utah 1993, Civil No. 92-C-0052A) denied plaintiffs' motion for preliminary injunction. In part, the court found that a forest supervisor need only show that damage from predators is threatened to establish a need for WDM. This court case determined that an actual loss is not a necessary component of livestock operations on public lands.

Comment 4: Lethal control is used immediately, before nonlethal control; lethal control should only be used after losses occur; current program is "kill happy", it is better to teach cooperators to avoid losses; need smaller, more nonlethal WS.

Response: Section 3.2.1 in the predecisional EA and Chapter 2.D.2 in the FEIS (USDA 1997) address this comment. NADCP applies the Integrated WDM approach (WS Directive 2.105) to reduce wildlife damage. Integrated WDM considers all available approved methods of prevention and management to reduce damage caused by wildlife. NADCP personnel use the WS Decision Model (Slate et al. 1992) at each site to determine the most appropriate methods and strategies to resolve wildlife damage as discussed in Section 1.4.5 of the predecisional EA and WS Directive 2.105. Nonlethal methods are given preference where practical when formulating a damage reduction strategy (WS Directive 2.101). When nonlethal methods alone are not practical, NADCP uses or recommends a combination of lethal and nonlethal methods to address damage problems. NADCP personnel use their expertise to determine the appropriate response to wildlife damage at each site. In situations where experience has shown that nonlethal methods are not effective, NADCP personnel may use lethal methods as their primary tool. In addition, available nonlethal methods are often recommended to those sustaining damage if these methods are not already being used. The use of both lethal and nonlethal methods can greatly enhance the efficacy of a damage reduction strategy. Ultimately, the goal is to preserve wildlife while resolving conflicts between humans and wildlife.

In addition, most U.S. sheep producers use one or more forms of nonlethal control. The selection of the methods that are used is probably based on their cost and effectiveness (Connolly and Wagner 1998). Connolly and Wagner (1998) reported that in 1994 of 8,451 U.S. sheep producers surveyed by the USDA National Agriculture Statistics Service 34% used fencing, 25% used husbandry, 20% used guard animals, 4% used frightening tactics, and 3% used other nonlethal methods to reduce predation. Overall, 55% of the sheep producers used at least one nonlethal method and 70% of the U.S. sheep were protected by one or more nonlethal method. This suggests that many livestock producers already use nonlethal methods to protect their livestock. May (1996) reported that 80% of the livestock producers in New Mexico stated that nonlethal methods alone did not reduce predation of livestock to an acceptable level and that 90% of the producers relied on both lethal and nonlethal control measures to reduce predation to acceptable levels.

Comment 5: Deplore aerial hunting; aerial hunting is a preventative method that is environmentally destructive; aerial hunting should be conducted at least 1 mile from wild horses and wildlife.

Response: Shooting from aircraft, or aerial hunting, is a commonly used wildlife damage reduction method in Nevada. The primary species targeted with this method is the coyote; ravens and feral dogs are also occasionally targeted by NADCP. Aerial hunting is highly species-selective and can be used for immediate damage reduction where livestock losses are occurring or to prevent predictable losses in areas with high

historical losses. Aerial hunting is also effective in removing offending coyotes that are not susceptible to other methods. NADCP uses aerial hunting as a damage reduction method in accordance with Federal and State laws. Aerial hunting is only used when weather, terrain, and cover conditions are deemed favorable. WS' aircraft-use policy helps ensure that aerial hunting is conducted in a safe and environmentally sound manner. Pilots and their aircraft must be certified under established WS procedures. Only properly trained WS personnel are approved as gunners. Fixed-wing aircraft are useful for aerial hunting over flat and gently rolling terrain. Helicopters have greater utility over rugged and timbered lands, and broken terrain because of their maneuverability. The helicopter is more costly and, therefore, fixed-wing aircraft are used unless terrain or adverse conditions warrant the use of a helicopter.

Aerial hunting is used as a reactive and proactive control method to reduce coyote damage. The amount of time spent aerial hunting on different land classes is discussed under Section 4.2.1.2 in the predecisional EA. This section also discusses the effects of low-level flights on wild horses and wildlife. It was determined that NADCP has minimal effects on wild horses and wildlife and that a ½ mile distance from observed animals was sufficient to keep from disturbing them. NADCP pilots are aware of these concerns and actively avoid activities that disturb any animals that they encounter.

As far as being a method that is environmentally destructive, aerial hunting is quite the opposite. This PDM method allows minimal, if any, contact with sensitive desert terrain, whereas the use of other PDM methods often requires more direct contact. In addition, this method is highly selective for the target species. The predecisional EA also discussed the amount of time spent on different land classes under agreement in section 4.2.1.4. NADCP currently averages 2 and 7 minutes of flight time per square mile of lands under agreement for the Bureau of Land Management (BLM) and U.S. Forest Service (USFS) allotments. This minimal amount of time spent per square mile of the allotments under agreement should have little effect on recreationists.

Comment 6: Poison should not be used on public lands and glad M-44s are not used much by NADCP.

Response: A decision to ban toxicants is outside the scope of WS' authority. WS could elect to discontinue its use of toxicants, but those registered in Nevada are an integral part of Integrated WDM and their selection for use follows criteria in the WS Decision Model (see Chapter 3, Slate et al. 1992). Sections 2.2.5 in the predecisional EA discusses the issue of chemical toxicant use with regard to public safety. Much of the public's concern over the use of toxicants is based on an erroneous perception that WS uses nonselective, outdated chemical methodologies. In reality, the chemical methods currently employed by WS have a high degree of selectivity. WS' use of toxicants is regulated by the Environmental Protection Agency through the Federal Insecticide, Fungicide and Rodenticide Act, by MOUs with other agencies, and by program directives. In addition, APHIS conducted a thorough risk assessment and concluded that chemicals used according to label directions are selective for target individuals or populations, and therefore, have negligible impacts on the environment (USDA 1997, Appendix P).

Comment 7: Mountain lion population estimates were 750 in the mid-70s, but are now 3,000 - paper lions?; bobcat population had a crash in the mid-80s, cannot use take from 1979-80 as a comparison of harvest pressure.

Response: The mountain lion (*Puma concolor*) population was provided by Nevada Department of Wildlife (NDOW) wildlife biologists who are professionals and can provide the most accurate scientific estimate. They base their estimate on many factors that influence populations. NDOW biologists did feel that their estimate was conservative, and that in fact, the population of mountain lions is likely to be somewhat higher.

The bobcat population has been stable to increasing for the past several years according to NDOW wildlife biologists who monitor the population and have the expertise to determine the bobcat population status. The stable to increasing numbers of bobcats in Nevada has also been corroborated by NADCP Specialists in the field. Bobcats were sought after heavily in the late 70s and early 80s because of their high fur prices. This was true throughout the United States. Wildlife biologists during this time had concerns about potential over-harvesting, and as a result, game regulations were increased in many states to lower the harvest pressure. Since then, the bobcat population has rebounded throughout its range and are quite common today. In addition, the fur prices have declined significantly which has reduced the number being harvested (5,513 bobcats were harvested in the 1979-80 fur season compared 1,705 in the 1997-98 fur season). The harvest from 1979-80 was given for all species because the harvest pressure during that time was at an all-time high and all furbearer populations were able to withstand the pressure. However, this harvest level was not used in the bobcat population impact analysis, Section 4.2.1.1 of the in the predecisional EA, but given for a relative comparison of the harvest pressure for all species. The current harvest level was used along with population data from the past 5 years. The bobcat population was estimated to be 20,000 in Nevada in 1988 (USDA 1997) by NDOW and this was used as a base population level. The population has been stable to increasing since this time and, therefore, this figure is considered very conservative, but adequate enough to illustrate cumulative impacts on the species.

Comment 8: Where predation by mountain lions is sufficient to limit wild horse populations, offending mountain lions should be taken as necessary.

Response: Historically, the primary PDM conducted in the wild horse range of Nevada has been to reduce coyote damage to livestock. Some mountain lions are removed from these areas annually when the lions predate livestock. However, mountain lion removal has not been done for wild horses. Mountain lions in Nevada probably prey on wild horses to some extent. Only one study (Turner et al. 1992) was found that documented sufficient predation on wild horse populations to limit growth. In this study, a mountain lion population in central California depredated foals and young horses (70%), but no evidence of predation on older horses was observed. This level of predation, though, kept the horse herd at a fairly stable population. Only a few other accounts of wild horse predation by mountain lions have been reportedly found where they could possibly have limited the horses' population, but none of these have been studied (L. Coates-Markle, Wild Horse and Burro Specialist, BLM, pers. comm. 1997). However, NADCP would not intentionally remove any mountain lion that was preying on wild horses unless the managing agency, BLM or the Nevada Division of Agriculture, requested such actions and NDOW approved the removal of the mountain lion(s).

Comment 9: The issue of humaneness is strange to see in a document to control wildlife; aerial hunting is inhumane.

Response: The issue of humaneness, as it relates to the killing or capturing of wildlife, is an important but very complex concept that can be interpreted in a variety of ways. Schmidt (1989) indicated that vertebrate pest control for societal benefits could be compatible with animal welfare concerns, if "... *the reduction of pain, suffering, and unnecessary death is incorporated in the decision making process.*" Suffering has been described as a "... *highly unpleasant emotional response usually associated with pain and distress.*" However, suffering "... *can occur without pain ...*," and "... *pain can occur without suffering ...*" (AVMA 1987). Because suffering carries with it the implication of a time frame, a case could be made for "... *little or no suffering where death comes immediately ...*" (CDFG 1991).

Defining pain as a component in humaneness appears to be a greater challenge than that of suffering. Pain obviously occurs in animals. Altered physiology and behavior can be indicators of pain, and identifying the causes that elicit pain responses in humans would "... *probably be causes for pain in other animals ...*" (AVMA 1987). However, pain experienced by individual animals probably ranges from little or no pain to

significant pain (CDFG 1991). Thus, WS' damage management methods, such as leghold traps and body snares, may cause varying degrees of pain in different animal species captured for varying lengths of time. The point at which pain diminishes or stops under these types of restraint has not been measured by the scientific community.

Pain and suffering, as it relates to a review of WS' damage management methods, has both a professional and lay point of arbitration. Wildlife managers and the public would both be better served to recognize the complexity of defining suffering, since "*... neither medical or veterinary curricula explicitly address suffering or its relief*" (CDFG 1991).

Therefore, humaneness appears to be a person's perception of harm or pain inflicted on an animal, and people may perceive the humaneness of an action differently. The issue of humaneness has two aspects in relation to the proposed action:

1. Animal welfare organizations and individuals are concerned that some WDM methods expose animals to unnecessary pain and suffering. Kellert and Berry (1980), in a survey of American attitudes toward animals, related that 58% of their respondents "*... care more about the suffering of individual animals ... than they do about species population levels.*"

Research suggests that the blood chemistry of trapped animals indicates "stress." However, similar blood measurements from foxes chased by dogs for about five minutes indicated comparable levels of stress, even though the fox was not physically restrained as it would have been in a trap (USDA 1997). Unfortunately, research has not yet progressed to the development of objective, quantitative measures of pain or stress for use in evaluating humaneness.

2. Humaneness, as perceived by the livestock industry and pet owners, requires that domestic animals be protected from predators because humans have bred the natural defense capabilities out of domestic animals. It has been argued that man has a moral obligation to protect these animals from predators (Glosser 1993). Predators frequently do not kill large prey animals quickly, and will often begin feeding on them while they are still alive and conscious (Wade and Bowns 1982). The suffering apparently endured by livestock or pets damaged in this way is unacceptable to many livestock producers and pet owners.

Thus, the decision-making process involves tradeoffs between pain and humaneness. An objective analysis of this issue must consider not only the welfare of a wild animal caught in a leghold trap, but also the welfare of the domestic animals that may continue to be injured or killed if the leghold trap were not being used. The challenge in coping with this issue is to achieve the least amount of animal suffering within the constraints imposed by current technology and funding.

WS has improved the selectivity and humaneness of management devices through research and the development of modifications such as pan-tension devices, electronic trap monitors and breakaway snares. Research is continuing to bring new findings and products into practical use. However, a certain amount of animal suffering may occur whenever nonlethal methods are impractical or ineffective. Furthermore, it is possible that the net amount of animal suffering would be less under the proposed action (or any other alternative involving the use of lethal methods) than under the No Action Alternative, since the suffering endured by livestock and pets would be reduced if the action is successful.

NADCP personnel are experienced and professional in their use of management methods and are as humane as possible under the current constraints of technology, workforce, and funding. Mitigation measures and SOPs used to maximize humaneness are listed in Chapter 3.

Considering the comment that aerial hunting is inhumane, aerial hunting is nothing more than shooting an animal from a vantage point just above at a distance usually less than 100 feet with a large gauge shotgun. Shooting is considered humane by the American Veterinary Medical Association (AVMA 1986). NADCP gunners are trained and certified with the purpose of being able to quickly dispatch target animals.

Comment 10: WS' removal of coyotes may increase livestock depredation problems.

Response: This argument was raised in *Southern Utah Wilderness Alliance v. Thompson* (U.S. District Court of Utah 1993, Civil No. 92-C-0052A) and addressed by Connolly (1992) during that court case. What happens in an unexploited coyote population bears little relevance to the situation in Nevada or in most other areas of the U.S. As noted in the EA, coyote populations in Nevada are subject to mortality not only from WS, but also from natural mortality, private trappers and hunters as well as ranchers protecting their livestock.

WS is unaware of any scientific data that would support the speculation about unexploited coyote populations posing less risk to livestock than exploited populations. Where monitoring was conducted, in areas with organized PDM efforts, losses to sheep from coyotes typically ranged from 1.0 to 6.0% for lambs and 0.1 to 2.0% for ewes (USDI 1978). In situations where producers were reimbursed for their losses in lieu of PDM efforts (Henne 1975, Munoz 1977, McAdoo and Klebenow 1978, Delorenzo and Howard 1976, O'Gara 1983), losses from coyotes were typically greater, ranging from 12 to 29% of lambs and 1 to 8% of ewes. Windberg et al. (1997) demonstrated that coyotes from unexploited coyote populations readily kill livestock and selectively preyed on smaller goats. They determined that 41% of the kid goats exposed during the study were killed by predators. This remarkably high predation rate occurred despite no recent (>7 years) exposure to goats or sheep as prey on their study area. In addition, Shivik et al. (1996) observed nonresident coyotes crossing other coyote territories to prey upon livestock, apparently without aggressiveness directed at the nonresident coyote, and by using radio-telemetry, documented that coyotes would travel up to seven kilometers to kill lambs. Windberg et al. (1997) noted that the high incidence of predation by an unexploited coyote population, which had very low reproductive efforts, was contrary to the issue raised.

As reported by Wagner (1997) and Wagner and Conover (1999), WS PDM was effective in reducing lamb losses for 3 to 6 months and cost effective in areas where winter aerial hunting (proactive control) was conducted, and did not adversely impact the coyote population (predecisional EA at Chapter 4.2.1.1). Conner et al. (1998) and the U.S. General Accounting Office (GAO 1990) also concluded that according to available research, WS PDM efforts have been effective in reducing damage losses. Guthery and Beasom (1978) demonstrated that PDM can substantially increase the survival of vulnerable livestock. In their study with goats, predators were responsible for most of the known losses, with the predation loss as high as 95% of the kid mortality. The EA cites many of the same references that GAO reviewed to document the effectiveness of PDM.

Coyotes in areas of lower population densities, reportedly reproduce at an earlier age and have more offspring per litter. However, these same populations generally sustain high mortality rates of adults and offspring. Therefore, the overall population of the area does not change substantially (Conner et al. 1998). The number of breeding coyotes does not substantially increase or decrease in the absence of exploitation, and individual coyote territories produce one litter per year independent of the population being exploited or unexploited. Connolly and Longhurst (1975) demonstrated coyote populations in exploited and

unexploited populations do not increase at significantly different rates and that an area will only support a population to its carrying capacity. Thus, it appears the above concern is unfounded.

The EA also noted that without NADCP, coyote damage management efforts would still likely be carried out at some lower level by state agencies, PARC, NWPAC, and NDOW, or private individuals.

Major Issues

Cooperating agencies and the public helped identify a variety of issues deemed relevant to the scope of this EA. These issues were consolidated into the following 9 primary issues that were considered in detail in the predecisional EA:

1. Effects on Target Predator Species Populations.
2. Effects on Nontarget Species Populations, Including T&E Species.
3. Humaneness of Methods Used by NADCP.
4. Effects on Recreation (Hunting and Nonconsumptive Uses).
5. Impacts on Public Safety and the Environment.
6. Effectiveness of NADCP.
7. Impacts on Special Management Areas.
8. Indirect and Cumulative Impacts.
9. Cost Effectiveness.

Alternatives Analyzed in Detail

Six potential alternatives were developed to address the issues identified above. Six additional alternatives were considered, but not analyzed in detail. A detailed discussion of the anticipated effects of the alternatives on the objectives and issues is described in Chapter 4 of the predecisional EA. The following summary provides a brief description of each alternative and its anticipated impacts. Table 10 in the predecisional EA summarizes the environmental consequences (issues) of each of the alternatives in a table format.

Alternative 1. Continue the Current Federal PDM Program (No Action). Consideration of the No Action alternative is required under 40 CFR 1502.14(d), and provides a baseline for comparing the potential effects of all the other alternatives. In this EA, the "No Action" alternative is consistent with CEQ's definition and is equivalent to the current program which it will be referred to as. This alternative consists of using all currently authorized control methods in an integrated approach to resolve predator damage problems on all lands in Nevada. Control actions may be initiated under either reactive or proactive strategies, in response to current or historic livestock losses, but only on the appropriate land classes, i.e. proactive control is not allowed in USFS wilderness areas. Alternative 1 benefits individual resource owners/managers, while resulting in only low levels of impact on wildlife populations, minimal potential to adversely impact ecosystems, very low risks to or conflicts with the public, and low risk to T&E species. Current lethal methods available for use are fairly selective for target species and appear to present a balanced approach to the issue of humaneness when all facets of the issue are considered. The "No Action" alternative is a procedural NEPA requirement (40 CFR 1502.14(d), and is a viable and reasonable alternative that could be selected. It will serve as a baseline for comparison with the other alternatives.

Under the current program, most of the requests for PDM come from livestock operators (i.e., private resource owners) associated with both private and public lands. While the majority of the livestock owners

are based on private land, many of them graze their livestock on public lands for at least some portion of the year and, thus, encounter depredation on public lands. Many of the livestock owners also graze their livestock on lands which adjoin public lands and experience depredation which originates from the public lands. Livestock owners are given PDM assistance from NADCP within the fiscal constraints of the program.

NADCP also receives some requests for PDM assistance to protect other agricultural products such as crops, property and natural resources, and human health and safety. Most of these requests also come from private individuals. However, several of the requests come for public entities such as the County Sheriff. Occasionally, a land management agency will request NADCP assistance. PDM provided by NADCP personnel can be done on public, private, state, Indian, and other lands, or any combination of these land class types.

The current PDM program on private lands is governed by WS policy and a specific private property agreement for that particular property. The agreement specifies the methods to be used and the species to be targeted on a specific property. The current program activities on public lands are defined specifically in Annual Work Plans which reflect the descriptions, restrictions, and mitigative measures found within the nine separate BLM and USFS EAs. The issues, alternatives, and mitigating items from these EAs have been reviewed, examined, and incorporated, as appropriate, into this EA. The nine EAs and their accompanying "Findings of No Significant Impact" represent nine separate and individual processes of analysis for possible environmental impacts of the current program. These EAs resulted in nine separate and individual determinations of no significant impact and the authority to work on the respective BLM Districts and NFs. The BLM Districts and NFs covered by these EAs were:

- | | |
|---|---|
| 1) Battle Mountain BLM District (BLM 1993a) | 2) Carson City BLM District (BLM 1994a) |
| 3) Elko BLM District (BLM 1995) | 4) Ely BLM District (BLM 1994b) |
| 5) Las Vegas BLM District (BLM 1993b) | 6) Susanville BLM District (BLM 1989) |
| 7) Winnemucca BLM District (BLM 1994c) | 8) Humboldt NF (USFS 1991) |
| 9) Toiyabe NF (USFS 1992) | |

Alternative 2. No Federal NADCP PDM. This alternative would consist of no federal involvement in PDM in Nevada - neither direct operational PDM nor technical assistance to provide information on nonlethal or lethal PDM techniques would be available from NADCP. A portion of the formerly federal PDM responsibility would be borne by the remaining state agency programs, PARC and NWPAC. Private individuals would increase their efforts which means more PDM would be conducted by persons with less experience and training, and with little oversight or supervision. Lethal controls by other agencies and private individuals would still be subject to State restrictions. Risks to the public and T&E species would probably be greater than under Alternative 1, and effectiveness and selectivity would probably be lower. Perceived conflicts with recreational public land users might be less. In reality, though, conflicts with recreationists would probably increase because PDM methods would likely be used by inexperienced users that would not put up warning signs. In addition, frustrated resource owners that have endured recurring losses may resort to the use of illegal or inappropriate techniques that would also conflict with recreationists.

Alternative 3. Non-lethal Management Only. Under this alternative, NADCP would not provide any direct control assistance to persons experiencing predator damage problems, but would instead provide advice, recommendations, and limited technical supplies and equipment. Lethal PDM would likely be conducted by persons with little or no experience and training, and with little oversight or supervision. Risks to or conflicts with the public and T&E species would probably be more than Alternative 1, but slightly less

than or about the same as Alternative 2, The effectiveness of NADCP and selectivity of PDM methods would probably be lower than Alternative 1. Perceived conflicts with recreational public land users would be less than Alternative 1, but in reality slightly more for reasons described under Alternative 2.

Alternative 4. Nonlethal Required Before Lethal Control. This alternative would not allow the use of lethal methods by NADCP as described under the proposed action until nonlethal methods had been attempted. Producers and state agencies would still have the option of implementing their own lethal control measures. Risks to or conflicts with the public and risks would be about the same as Alternative 1. Risks to T&E species would probably be somewhat greater than Alternative 1, but slightly less than or about the same as Alternative 2 or 3. Program effectiveness would probably be lower than Alternatives 1 and 5. Selectivity of PDM methods under this alternative would likely be less than Alternative 1 if reduced effectiveness leads to greater PDM efforts by less experienced and proficient private individuals, but greater than Alternatives 2 and 3. Perceived conflicts with recreational public land users would be slightly less than Alternative 1.

Alternative 5. Modified Current Program, the "Proposed Alternative". This alternative is almost identical to the current program alternative (see the description of the current program alternative above). The difference between this modified alternative and the current program is that the proposed action would provide for one consistent statewide plan to replace the nine different work plans that derive from the nine Federal EAs. This plan would provide more consistent interagency interaction, with all affected agencies having oversight at the State level. This alternative would also allow NADCP to be more consistent with program delivery because personnel would not have to be cognizant of varying policies and mitigation measures for conducting PDM on different lands or within different districts. This proposed alternative is essentially the current program alternative described in the WS FEIS (USDA 1997). The only difference in issues as related to the alternatives between this and Alternative 1 is that NADCP would likely be slightly more effective under this one EA rather than abiding by the several different sets of rules and mitigation measures outlined in the 9 different EAs. This modified alternative, though, does incorporate all substantiated issues and mitigation measures found in the nine Federal EAs.

Alternative 6. Expanded Federal PDM Program. This alternative is similar to the proposed action, but would increase PDM efforts statewide in a more aggressive program using all legal methods including the Livestock Protection Collar (LPC), if and when approved by NDOA for use in Nevada. Both lethal and nonlethal methods and proactive preventative management strategies would be allowed, while adhering to applicable state and federal laws and regulations. Proactive preventative control efforts would be increased in areas where losses to predators have historically occurred or where an imminent threat of current losses would logically occur to livestock scheduled to enter the area shortly. NADCP would provide livestock owners with assistance, information and training concerning the use and effectiveness of both lethal and nonlethal PDM methods. NADCP would employ nonlethal PDM methods whenever practical and would recommend such control methods to livestock producers. This alternative would include an increase in PDM activities in urban areas. However, this alternative would be contingent upon increased program funding and staffing.

Alternatives considered but not analyzed in detail were:

1. **Compensation for Predator Damage Losses.** The compensation alternative would require the establishment of a system to reimburse persons impacted by predator damage. This alternative was eliminated from further analysis because no federal or state laws currently exist to authorize such action and because of other drawbacks that were discussed in the predecisional EA and the WS FEIS (USDA 1997).

2. **Bounties.** Bounties are payment of funds for killing predators of certain species that cause or are suspected of causing economic losses. This alternative was eliminated from further analysis because it is not supported by Nevada State agencies such as NDOW and NDOA nor is it supported by NADCP because of problems that were discussed in the predecisional EA.
3. **Eradication and Long Term Population Suppression.** An eradication alternative would direct all WS program efforts toward total long term elimination of coyotes and perhaps other predator species within large defined areas or across the entire analysis area. This alternative was eliminated from further analysis because NADCP, NDOW, USFWS, and NDOA oppose eradication of any native wildlife species, and because it is generally impossible to achieve. Long term population suppression is not a desired goal of state agencies or of NADCP for the analysis area as a whole but could be implemented for localized areas prone to predator damage under the current program alternative (ie. urban neighborhoods). The impacts of localized population suppression are analyzed in the EA.
4. **The Humane Society of the United States (HSUS) Alternative.** This alternative would require that: 1) "permittees evidence sustained and ongoing use of nonlethal/husbandry techniques aimed at preventing or reducing predation prior to receiving the services of the WS Program"; 2) "employees of the WS Program use or recommend as a priority the use of appropriate nonlethal techniques in response to a confirmed damage situation"; 3) "lethal techniques be limited to calling and shooting and ground shooting, and used as a last resort when use of husbandry and/or nonlethal controls have failed to keep livestock losses below an acceptable level"; and 4) "establish higher levels of acceptable loss levels on public lands than for private lands." This alternative was not considered in detail because the proposed action already embodies the first two components of the HSUS alternative, the detailed analysis contained in the EA includes most facets of the HSUS proposal, and it is believed that inclusion of this alternative would not contribute new information or options for consideration and analysis that are not already being considered and available in Integrated WDM as used by NADCP.
5. **Mountain Lion Sport Harvest Alternative.** An alternative to offer sport harvest of mountain lions where control is required, prior to NADCP involvement, was considered but rejected from detailed analysis. NDOW has indicated that it is not feasible because the legal framework is not in place to institute such an alternative (BLM 1995).
6. **Lithium Chloride as an Aversive Agent.** Aversive conditioning with lithium chloride baits was not considered in detail as an alternative because the efficacy of the technique remains unproven, and the chemical is not registered (and thus not legal) for this use.

Comments regarding the Alternative Selection

The following comments were received regarding the selection of the alternatives in the Record of Decision.

1. Support the proposed action (Alternative 5).
2. Support alternatives in the following order:
 - a) Alternative 2, b) Alternative 3, c) Alternative 4
 - a) HSUS Alternative, b) Alternative 2, c) Alternative 3, d) Alternative 4

- a) Alternative 2, b) HSUS Alternative, c) Alternative 3, d) Alternative 5
a) Alternative 4 the best; Alternative 6 worst.

Finding of No Significant Impact

The analysis in the EA indicates that there will not be a significant impact, individually or cumulatively, on the quality of the human environment as a result of this proposed action. I agree with this conclusion and therefore find that an EIS need not be prepared. This determination is based on the following factors:

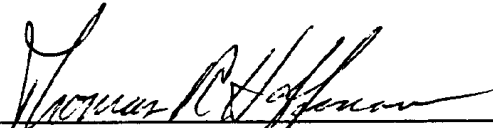
1. PDM, as conducted by NADCP, is not regional or national in scope.
2. The proposed action would pose minimal risk to public health and safety. No injuries to any member of the public are known to have resulted from NADCP activities.
3. There are no unique characteristics such as park lands, prime farm lands, wetlands, wild and scenic areas, or ecologically critical areas that would be significantly affected.
4. The effects on the quality of the human environment are not highly controversial. Although there is some opposition to predator control, this action is not highly controversial in terms of size, nature, or effect.
5. Based on the analysis documented in the EA, the effects of the proposed PDM program on the human environment would not be significant. The effects of the proposed activities are not highly uncertain and do not involve unique or unknown risks.
6. The proposed action would not establish a precedent for any future action with significant effects.
7. No significant cumulative effects on the quality of the human environment were identified through this assessment. The number of animals of any of the species taken by NADCP added to the total known other take of such species is either within levels sustainable by populations or is within levels authorized or desired by the responsible State agencies that represent the State's interests.
8. The proposed activities would not affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places, nor would they likely cause any loss or destruction of significant scientific, cultural, or historical resources.
9. An evaluation of the proposed action and its effects on T&E species determined that no significant adverse effects would occur to such species.
10. The proposed action would be in compliance with all Federal, State, and local laws imposed for the protection of the environment. The proposed activity does not violate the Migratory Bird Treaty Act.
11. There are no irreversible or irretrievable resource commitments identified by this assessment, except for a minor consumption of fossil fuels for routine operations.

Decision

I have carefully reviewed the EA and the input resulting from the public involvement process. I believe the issues and objectives identified in the EA would be best addressed through implementation of Alternative 5 (the proposed action or the modified current program). Alternative 5 is therefore selected because (1) PDM activities will be consistent throughout NADCP under this one EA rather than the 9 EAs for the current program; (2) it offers the greatest chance at maximizing effectiveness and benefits to affected resource owners and managers within current program funding constraints; (3) it will maximize selectivity of methods available; (4) it offers a balanced approach to the issue of humaneness when all facets of the issue are considered; (5) it will continue to minimize risk to or conflicts with the public; and (6) it will minimize risks to nontarget and T&E species. NADCP will continue to use an Integrated WDM approach in compliance with all the applicable mitigation measures listed in Chapter 3 of the EA.

For additional information regarding this decision, please contact Robert Beach, USDA-APHIS-WS, 4600 Kietzke Lane, Building O-260, Reno, NV 89502, (775) 784-5081.

Acting



Michael V. Worthen, Regional Director
APHIS-WS Western Region

7/15/99

Date

Literature Cited

- American Veterinary Medical Association (AVMA). 1986. 1986 Report of the AVMA Panel on Euthanasia. J. Amer. Vet. Med. Assoc. Vol. 188:3. p. 252-268.
- American Veterinarian Medical Association (AVMA). 1987. Panel report on the colloquim on recognition and alleviation of animal pain and distress. J. Amer. Veter. Med. Assn. 191(12):1186-1189.
- Bureau of Land Management (BLM). 1989. Environmental Assessment: Susanville District Animal Damage Control Plan. BLM-BLM Report CA-020-90-03. 8 pp.
- Bureau of Land Management (BLM). 1993a. Animal Damage Control Program Environmental Assessment for the Battle Mountain District. BLM-BLM Report N63-EA3-37. 26 pp.
- Bureau of Land Management (BLM). 1993b. Environmental Assessment for the Las Vegas District. BLM-BLM Report NV-054-93-18/NV-055-03-02. 23 pp.
- Bureau of Land Management (BLM). 1994a. Animal Damage Control Program Environmental Assessment for Carson City District. BLM-BLM Report EA NV-030-94012. 14 pp.
- Bureau of Land Management (BLM). 1994b. Animal Damage Control Program Environmental Assessment for the Ely District. BLM-BLM Report NV-040-94-21. 51 pp.
- Bureau of Land Management (BLM). 1994c. Animal Damage Control Environmental Assessment for the Winnemucca District. BLM-BLM Report NV-020-04-27. 79 pp.
- Bureau of Land Management (BLM). 1995. Integrated Wildlife Damage Management Program (1994-1998) for the Elko District. BLM-BLM File 6830. 62 pp.
- California Department of Fish and Game (CDFG). 1991. Final environmental document - bear hunting. Sections 265, 365, 366, 367, 367.5, Title 14 California Code of Regs. California Fish Game, Sacramento, CA.
- Conner, M. M., M. M. Jaeger, T. J. Weller and D. R. McCullough. 1998. Effect of coyote removal on sheep depredation in northern California. J. Wildl. Manage. 62:690-699.
- Connolly, G. E. 1992. Declaration of Guy Connolly for United States District Court of Utah. Civil No. 92-C-0052A.
- Connolly, G. E., and W. M. Longhurst. 1975. The effects of control on coyote populations. Div. of Agric. Sci., Univ. of California Davis. Bull. 1872. 37 pp.
- Connolly, G. E., and B. Wagner. 1998. Non-lethal control by U.S. sheep producers. Proc. Vertebr. Pest Conf. 18:126-130.
- Delorenzo, D. G., and V. W. Howard Jr. 1976. Evaluation of sheep losses on a lambing operation in southeastern New Mexico. Agricul. Exp. Stn. New Mexico State Univ., Las Cruces. Res. Rep. 341.
- General Accounting Office (GAO). 1990. Effects of Animal Damage Control program on predators. GAO/RECD-90-149. U.S. General Accounting Office, Washington, D.C. 31 pp.
- Glosser, J. W. 1993. Conservation and wildlife preservation challenges for veterinarians. J. Amer. Veter. Med. Assn. 202: 1078-1081.
- Guthery, F. S., and S. L. Beasom. 1978. Effects of predator control on angora goat survival in south Texas. J. Range Manage. 31:168-173.
- Henne, D. R. 1977. Domestic sheep mortality on a western Montana ranch. pp. 133-149 in R. L. Phillips and C. Jonkel (eds.) Proc. 1975 Predator Sym. Montana For. Conserv. Exp. Stn., School For., Univ. Mont. Missoula.
- Kellert, S. R., and J. K. Berry. 1980. Knowledge, affection and basic attitudes toward animals in American society. U.S. Fish & Wildl. Ser. and U.S. Dept. Commerce, Springfield, VA.

- May, J. A. 1996. Results of a non-lethal survey and report provided to the New Mexico legislature. *Proc. Vertebr. Pest Conf.* 17:225-229.
- McAdoo, J. K., and D. A. Klebenow. 1978. Predation on range sheep with no predator control. *J. Range Manage.* 31:111-114.
- Munoz, J.R. 1977. Cause of sheep mortality at the Cook Ranch, Florence, Montana. 1975-1976. M.S. Thesis. Univ. Montana, Missoula. 55 pp.
- O'Gara, B. W., K. C. Brawley, J. R. Munoz, and D. R. Henne. 1983. Predation on domestic sheep on a western Montana ranch. *Wildl. Soc. Bull.* 11:253-264.
- Schmidt, R. H. 1989. Vertebrate pest control and animal welfare. Pages 63-68 in ASTM STP 1055. *Vertebrate Pest Control and Management Materials*. Vol. 6. K. A. Fagerstone and R. D. Curnow, eds. American Society for Materials and Testing, Philadelphia.
- Shivik, J. A., M. M. Jaeger and R. H. Barret. 1996. Coyote movements in relation to spatial distribution of sheep. *J. Wildl. Manage.* 60:422-430.
- Slate, D. A., R. Owens, G. Connolly, and G. Simmons. 1992. Decision making for wildlife damage management. *Trans. N. A. Wildl. Nat. Res. Conf* 57:51-62.
- Turner, J. W. Jr., M. L. Wolfe and J. F. Kirkpatrick. 1992. Seasonal mountain lion predation on a feral horse population. *Can J. Zool.* 70: 929-934.
- U.S. Department of Agriculture (USDA). 1997. Revised Animal Damage Control Final Environmental Impact Statement. U.S. Dept. Agric., Anim. Plant Health Inspection Serv., Anim. Damage Control, Operational Support Staff, Riverdale, MD.
- U.S. Department of the Interior (USDI). 1978. *Predator damage in the west: a study of coyote management alternatives*. U.S. Fish and Wildlife Service, Washington, D.C. 168 pp.
- U.S. Department of the Interior (USDI). 1979. Mammalian predator damage management for livestock protection in the Western United States. Final Environmental Impact Statement. Washington, D.C. 789 pp.
- U.S. Forest Service (USFS). 1991. Forest-wide Predator Damage Management Environmental Assessment for the Humboldt National Forest. USDA-USFS-HNF Intermountain Region Report. 40 pp.
- U.S. Forest Service (USFS). 1992. Forest-wide Animal Damage Management Environmental Assessment for the Toiyabe National Forest USDA-USFS-TNF Intermountain Region Report. 65 pp.
- Wade, D. A., and J. E. Bowns. 1982. Procedures for evaluating predation on livestock and wildlife. Texas Ag. Ext. Serv., Texas A&M Univ., College Station, TX.
- Wagner, K. K. 1997. Preventive predation management: as evaluation using winter aerial coyote hunting in Utah and Idaho. PhD. Diss. Utah State Univ. Logan. 100 pp.
- Wagner, K. K. and M. R. Conover. 1999. Effect of preventive coyote hunting on sheep losses to coyote predation. *J. Wildl. Manage.* 63:606-612.
- Windberg, L.A., F.F Knowlton, S.M. Ebbert, and B.T. Kelly. 1997. Aspects of coyote predation on angora goats. *J. Range Manage.* 50:226-230.